

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY



(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 15 MAR 2005

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Applicant's or agent's file reference 71547-74721	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. PCT/EP2004/050367	International filing date (day/month/year) 26.03.2004	Priority date (day/month/year) 14.04.2003
International Patent Classification (IPC) or national classification and IPC C04B35/573, C04B41/50, C04B35/52, C22C26/00		
Applicant SKELETON TECHNOLOGIES AG et al.		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau) a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input checked="" type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input checked="" type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand  04.11.2004	Date of completion of this report  14.03.2005	
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Sala, P  Telephone No. +49 89 2399-8568  	

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1-10 as originally filed

**Claims, Numbers**

1-11 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

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1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 11

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 11

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form

☐ has not been furnished

☐ does not comply with the standard

the computer readable form

☐ has not been furnished

☐ does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.

☐ See separate sheet for further details

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**Box No. IV Lack of unity of invention**

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1. ☒ In response to the invitation to restrict or pay additional fees, the applicant has:
- ☐ restricted the claims.
  - ☐ paid additional fees.
  - ☐ paid additional fees under protest.
  - ☒ neither restricted nor paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
  - ☒ not complied with for the following reasons:  
**see separate sheet**
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
  - ☒ the parts relating to claims Nos. 1-10 .

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	1
Inventive step (IS)	Yes: Claims	
	No: Claims	1-10
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

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**Re Item III.**

No examination of claim 11 is carried out because of not establishment of a search report for this claim: the search is limited to the first invention.

**Re Item IV.**

The separate inventions/groups of inventions are:

1-10

Method for manufacturing a diamond composite and use of this method for forming a substrate suitable for a diamond film.

11

A diamond composite obtainable by the method according to claim 1 wherein one side of the composite is coated with a thin layer of aluminium nitride.

They are not so linked as to form a single general inventive concept (Rule 13.1 PCT) for the following reasons:

The common concept between the group of inventions 1 and invention 2 is: diamond composite manufactured by the method according to claim 1. A product - the diamond composite - is not rendered novel merely by the fact that it is produced by means of a new process. The expression "manufactured by the method" must be therefore interpreted as simply meaning "obtainable by the method". The document US-A-6179886 (see for instance example 1) discloses a diamond composite which is obtainable by method of claim 1, although it is actually obtained by a method in which a lower proportion of additive (a temporary binder) is used. The common concept is therefore not novel. Since the common concept is not novel, and thus not inventive, no common inventive concept links the group of inventions 1 with invention 2.

**Re Item V.**

The following documents are cited:

D1=US-A-6179886

D2=US-A-4453951

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D1 (cited in the application) discloses in example 1 a method for manufacturing a diamond composite which comprises the steps a) to f) defined in claim 1 of the application. The application explains in page 4, lines 3-5 that the method claimed in the application differs from the known method in that a higher pressure is used and in that the composition of starting materials is different.

It appears however that the pressure of example 1 in D1 falls within the interval of claim 1 of the application. Example 1 of D1 uses a force of 45 kN which is applied on the circular surface of the cylindrical samples (radius= $1 \times 10^{-2}$  m).

The pressure is:

$$45 \times 10^3 \text{ N} / \pi \times (1 \times 10^{-2})^2_{\text{sqm}} = 45 \times 10^3 / \pi \times 1 \times 10^{-4} = 45/\pi \times 10^7 \text{ N/sqm (Pa)} = 14 \times 10^7 \text{ Pa} = 140 \text{ Mpa}$$

The only difference seems therefore to be the amount of additives: D1 uses 2 wt% dry resin, while the claim 1 of the application requires more than 5 wt%.

It does not appear at the moment that an inventive step can be based upon this feature because it is not unusual to use more than 5 wt% temporary binder (see D2, column 3, lines 32-35).

It is noted that the application does not contain any specific example. The Applicant may include the description of the experimental conditions of a specific example in his letter of reply.